EPD and R Pre-Workshop Instructions

TOPICS OF THE WORKSHOP

In the workshop we will address the following topics:

Getting the EPD into R

- Getting the EPD in as a postGres database
- Getting it in using a Microsoft Access Database
- Getting your own datafiles into R

Working on a single site.

- Doing searches for a specific site in the EPD
- Calculating percentages
- Matching up the chronologies with the PANGEA age models from Giesecke et al. 2013
- Preparing data for your own chronologies
- Plotting pollen diagram

Working on multiple sites

- Searching and restricting for multiple sites within different criteria
- Finding a certain species and plotting it for a given age/ timeslice
- Mapping changing distributions of a given species

Preworkshop instructions

There are a number of libraries (containing functions we need to use) for it to run smoothly. Please install the latest vesion of R (https://cran.r-project.org/)https://cran.r-project.org/ (https://cran.r-project.org/) and R studio (https://www.rstudio.com/products/rstudio/download/)https://www.rstudio.com/products/rstudio/download/ (https://www.rstudio.com/products/rstudio/download/). Once it's loaded and then copy the following code (the bits in the boxes without the ##) into the command line in R.

First you need to set the CRAN mirror that you want to use (where you can download the packages. For example, I am currently in the UK so I am using the Bristol mirror. You can select an appropriate (i.e. geographically close) mirror here (https://cran.r-project.org/mirrors.html):

```
options(repos=c(CRAN="http://www.stats.bris.ac.uk/R/"))
```

Then install the packages:

```
install.packages(pkgs = c("rioja", "analogue", "maps", "reshape2", "devtools"))
```

```
##
## The downloaded binary packages are in
##  /var/folders/d2/3nz8m6sn1_7567h_szncb8fw0000gp/T//RtmpGbmaml/downloaded_packag
es
```

Then check that the libraries are installed properly. When you run the following commands, may get a warning message informing you that the package was written using a different version of R, but for our purposes this is usually OK and not too much to worry about. You shouldn't get a message that says something like `"Error in library(rioja) : there is no package called 'rioja'"`.

```
library(rioja)
library(analogue)
library(reshape2)
library(maps)
```

Diego Nieto Lugilde and colleagues have started to develop a package called EPDr, and we will use some of these functions at the workshop. This package is still in development, so we have to download it from the working code repository site called github. To to this, run the following lines of code:

```
library(devtools)
install_github("dinilu/EPDr", force= TRUE)
```

And check that it is installed.

```
library(EPDr)
```

UPDATE! 29/5/2016

I've been doing a bit more coding this weekend. Please could you also install two more packages for the workshop: the `sqldf()` and `pangaear()` packages. Note that when I recently changed my version of OSX on my Mac, and so when I opened the `sqldf()` library for the first time it also prompted me to install X11 via XQuartz (https://www.xquartz.org/ (https://www.xquartz.org/)), as this was not installed as default.

```
library(devtools)
install_github("ropensci/pangaear")
library(pangaear)

install.packages("sqldf")
```

```
##
## The downloaded binary packages are in
##  /var/folders/d2/3nz8m6sn1_7567h_szncb8fw0000gp/T//RtmpGbmaml/downloaded_packag
es
```

```
library(sqldf)
```

You can also interact with the EPD using Access databases- but my understanding is that this only works in Windows (not Mac, not sure about Linux) and only works for the 32 bit version of R. Actually, when you download R in Windows you install both the 64 bit (called Rx64 3.2.4) and the 32 bit versions (Ri386 3.2.4). So if you have this then you can also try opening up the 32 bit version and running:

```
install.packages("RODBC")
```

```
##
## The downloaded binary packages are in
##  /var/folders/d2/3nz8m6sn1_7567h_szncb8fw0000gp/T//RtmpGbmaml/downloaded_packag
es
```

```
library(RODBC)
```

Any questions, please feel free to contact me and I will try to respond before the workshop- alistair.seddon@uib.no (mailto:alistair.seddon@uib.no)

See you next week!